

**Moving Beyond the Numbers:  
Evidence that Financial Ratios Don't Predict Nonprofit Outputs**

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**Abstract**

Public scrutiny of the nonprofit sector often focuses on excessive overhead spending as an obstacle to mission fulfillment. Scholarly rebuttals have been largely based on anecdotal evidence with limited empirical evidence on the effect of overhead investments on nonprofit performance. Building a unique dataset including outputs from Habitat for Humanity affiliates across the United States, as well as organizational and community-level data, this study examines the influence of overhead spending on nonprofit performance. Six measures are used: overhead ratio and expenses, administrative ratio and expenses, and fundraising ratio and expenses. The findings show that overhead and administrative expenses have a positive and significant effect on nonprofit performance, but no relationship is found between fundraising expenses and performance. Furthermore, inconsistent and mixed results suggest that financial ratios are a poor measure of performance and that nonprofit leaders and donors need to move beyond the ratios as a measure of nonprofit performance.

*Keywords:* overhead ratio and expenses, administrative ratio and expenses, fundraising ratio and expenses, nonprofit performance, outputs

## **Introduction**

Nonprofit organizations continue to be scrutinized for their overhead spending in comparison with program spending. This practice is based upon a misconception known as the “overhead myth,” which is “the false conception that financial ratios are a proxy for overall nonprofit performance” (The Overhead Myth, 2014). Eckerd (2015) suggests that financial ratios are used because the nonprofit sector has no standard performance measures, unlike for-profit organizations.

According to Bedsworth, Gregory, and Howard (2008), these unrealistic expectations among donors and watchdog organizations that monitor nonprofits pressure nonprofits to conform to funders’ expectations by spending as little as possible on overhead. This can lead to lower investment in infrastructure, which can have negative effects on an organization and its ability to achieve its mission (Gregory & Howard, 2009; Lecy & Searing, 2015). This creates a “starvation cycle” that affects a nonprofit’s ability to produce or serve (Bedsworth, Gregory & Howard, 2008).

Some organizations still perform well even when low overhead is hard to achieve (Eckerd, 2015). Furthermore, Eckerd (2015) argues that, “spending more on programs and less on administrative overhead is indicative of superior performance only if programs are shown to be more effective” (p. 438). Yet very little is known about how overhead expenses and the ratios developed for comparison actually affect nonprofit performance. Many of the arguments have been anecdotal or solely descriptive in nature, examining how expenses are reported on 990 tax

forms (Bedsworth, Gregory & Howard, 2008; Hager, Pollack & Rooney, 2004; Hager & Wing, 2004; Pollack & Rooney, 2003), with limited empirical evidence. Kim (2016) is the first scholar to explore the relationship between financial ratios and performance based on programmatic outcomes, rather than on financial performance.

We need to do a better job at assessing the relationship between overhead costs and performance (Gregory, 2010; Lecy & Searing, 2015; Eckhart-Queenan, Etzel & Prasad, 2016). To address this challenge, a unique dataset is built to help fill the research gap and to extend our thinking about how overhead costs affect nonprofit performance. This article begins with a review of the literature, and hypothesis development. This is followed by a discussion of the methodology adopted for the study to answer the research question: What is the effect of overhead costs on nonprofit performance? The results and a discussion of the theoretical and practical contributions are then presented, concluding with assessment of limitations and directions for future research.

### **Literature Review**

A common measure of performance in the nonprofit sector is the overhead ratio, which is the total management and general expenses plus fundraising expenses, divided by the total expenses (The Overhead Myth, 2014). This relatively simple formula has generated vastly divergent interpretations. According to Pollack and Rooney (2003), on one side it is argued that management and general expenses are the “proportion of the money that donors give that doesn't help intended beneficiaries or pay for artistic production. It's the bloated bureaucracy at the big nonprofit's fancy new headquarters and the cushy salary of the organization's executive” (p. 1).

On the other side, these expenses are seen as “the reasonable proportion of the money that provides the underpinnings for a well-managed, accountable organization with, to the language of the auditors, strong internal controls and well-managed risks” (p. 1).

Most academic literature leans toward the latter view. The Nonprofit Overhead Cost Project, a collaborative effort between the Center on Nonprofit and Philanthropy at the Urban Institute and the Center for Philanthropy at Indiana University, was a five-year study with the goal “to understand how nonprofits raise, spend, measure, and report funds for fundraising and administration, and to work with practitioners, policymakers, and the accounting professional to improve standards and practice in these areas” (Hager, Wing, Rooney & Pollack, 2004, p. 2). The study found that as a nonprofit’s overhead expenses decrease, there is less investment in infrastructure, which results in less effective organizations (Hager & Wing, 2004). A study conducted by the Bridgespan Group (Hager, Pollack & Rooney, 2004) found confirmation for the nonprofit starvation cycle in the consequences of underinvestment. For example, the researchers suggest that underinvestment of overhead expenses can lead to consequences such as limiting an organization’s ability to manage its financials, increased turnover among staff, reduced work quality, and inability to track important data, all of which could have devastating effects on an organization’s ability to fulfill its mission.

Through case studies and interviews, the Bridgespan Group researchers further argued that when nonprofit organizations can invest adequately in staffing and infrastructure, they are better able to carry out their missions, suggesting that there is a logic connection between increased overhead investment and increased organizational performance (Bedsworth, Gregory & Howard,

2008). Others argue that, “If nonprofits that are underspending on fundraising increased their spending on fundraising, they would increase the amount of funds they could spend on program activities. Similarly, nonprofits that are overspending on fundraising could decrease spending on fundraising by reallocating some of their spending on fundraising to program activities and increase program activities even further because the decrease in fundraising would increase net donations, providing even more funds to be spent on program outcomes” (Jacobs & Marudas, 2006, p. 113). Additionally, Chikoto and Neely (2014) find that to support financial capacity growth, nonprofits must make positive investments in the form of administrative and fundraising support, but not in the form of higher executive salaries.

These studies and arguments are based on anecdotal and descriptive data, which somewhat limits their immediate usefulness and applicability to the research question. Yet they can still help guide us to the following hypothesis:

- ***Hypothesis 1a:*** *Nonprofits with higher overhead ratios will have higher levels of performance than nonprofits with lower overhead ratios.*

As the overhead ratio is made up of both the administrative ratio and the fundraising ratio, can we expect these sub-components also to have the same positive relationship? Therefore, the following hypotheses are developed:

- ***Hypothesis 1b:*** *Nonprofits with higher administrative ratios will have higher levels of performance than nonprofits with lower administrative ratios.*
- ***Hypothesis 1c:*** *Nonprofits with higher fundraising ratios will have higher levels of performance than nonprofits with lower fundraising ratios.*

Furthermore, Steinberg and Morris (2010) argue that managers and donors should not emphasize cost ratios, as this has unintended harmful side effects such as compliance and regulatory costs, misleading solicitations, misled donors, ineffective generation of donations, and inefficient

provision of charitable outputs. They further argue that in some cases fundraising expenses will be higher, but that this does not necessarily indicate fraud or waste. This is further supported by Bowman (2006) who argues that overhead ratios are meaningless for comparing organizations, and that changes in overhead ratios are more useful for telling donors about what is happening within an organization. Therefore, each of the same hypotheses are tested, but using the expenses rather than the ratios.

- *Hypothesis 2a: Nonprofits with higher overhead expenses will have higher levels of performance than nonprofits with lower overhead expenses.*
- *Hypothesis 2b: Nonprofits with higher administrative expenses will have higher levels of performance than nonprofits with lower administrative expenses.*
- *Hypothesis 2c: Nonprofits with higher fundraising expenses will have higher levels of performance than nonprofits with lower fundraising expenses.*

## Methods

### Data

The analysis in this study is based on a sample of 818 Habitat for Humanity affiliate organizations across all 50 states of the United States, as well as Washington, D.C. A unique data set is created by integrating data from four distinct sources:

1. Performance data for 2013 is obtained from Habitat for Humanity's production reports for each of their affiliates.
2. The Urban Institute's NCCS core public charity data for 2013, to obtain organizational and financial data.
3. As a breakdown of administrative, fundraising, and program expenses is not included in the NCCS core data sets, these figures are manually pulled from the IRS 990 Forms from

GuideStar. The 990 Form year used from GuideStar is matched with that used in the 2013 NCCS file. In some cases, it is 2012 and in others it is 2013, depending on whether the organizations operate on the calendar or fiscal year.

4. Community level variables are collected from Social Explorer's American Community Surveys.

The 818 organizations in the sample are a subset of the population of potentially included organizations. The Habitat for Humanity production report for 2013 includes 1,395 of their affiliate organizations. This is merged with the NCCS core public charity data based on EIN numbers. As 225 of the affiliates are not included in the NCCS data, this reduces the sample down to 1,170. When the detailed functional expenses are pulled from the GuideStar 990 IRS tax forms, 315 affiliates are removed because they cannot be identified in GuideStar, their 990 for the needed year is not on file, they completed the 990 EZ, or they simply misreported their financial information. This reduces the sample down to 855. Community-level variables are merged by ZIP code. In this process, 12 organizations were lost as there was missing data for these ZIP codes. As a final step, outliers were removed. Eight affiliates were removed because they have excessive outputs, 11 were removed as they had a fundraising ratio of over 30%, and six were removed because they reported 100% administrative or overhead expenses but still produced outputs, creating a final sample size of 818 organization (N=818).

### **Representativeness of the Sample**

The representativeness of the 818 affiliate organizations compared to those that were eliminated (population minus sample) was checked in terms of outputs. The mean for each of the outputs for

the sample and the population minus the sample is highlighted in Table 1. Sample t-test reported insignificant results for the number of rehabilitated houses, which means that the averages for each of these for the sample group and the population minus the sample were not significantly different from each other. However, sample t-tests reported significant results for the number of new, recycled, repaired, and total houses, which means that the averages for each of these for the sample group and the population minus the sample group were significantly different from each other. One reason that the averages are so different between groups is that many of those organizations removed from the sample were not included in the NCCS core data, or they were but they completed a 990 EZ form because they did not generate enough revenue to file a full 990. Therefore, the sample used in this study represents organizations with higher expenses, presumably implying larger organizations.

[Insert Table 1 Here]

### **Dependent Variables**

Nonprofit output measures are important to assess the effect of nonprofit overhead expenses on outputs (Tinkelman and Danabedian, 2007). Therefore, the numbers of new, recycled, rehabilitated and repaired houses serve as program outputs and are used as a proxy for nonprofit performance. *New* is a newly constructed house. *Recycled* indicates a house on which the affiliate has foreclosed, and which has been rehabbed and made available for sale to another Habitat homebuyer. *Rehabilitated* indicates a house that has been donated to or bought by Habitat, has been fully rehabbed, and sold to a qualified Habitat homebuyer. *Repaired* includes everything from a critical repair to a cosmetic repair of a house. *Total* is a measure of the total number of *new*, *recycled*, *rehabilitated*, and *repaired* houses.

### **Independent Variables**

As there are many measures of nonprofit financial performance, Prentice (2016) suggests that researchers need to take construct validity into consideration, so multiple measures should be used to confirm the results. Therefore, six different measures are used to assess the effect of nonprofit overhead expenses on outputs.

The following independent variables all come from Part IX: Statement of Functional Expenses of the 990 Form. The *overhead expenses* are calculated by adding the management and general expenses (C25) with the fundraising expenses (D25); whereas, the *overhead ratio* is calculated by adding the management and general expenses (C25) with the fundraising expenses (D25) and dividing by the total expenses (A25). The *administrative expenses* are determined by taking the management and general expenses (C25); whereas, the *administrative ratio* is calculated by dividing the management and general expenses (C25) by total expenses (A25). The *fundraising expenses* come from line (D25); whereas, the *fundraising ratio* is calculated by dividing the fundraising expenses (D25) by total expenses (A25). For the analysis, *overhead*, *administrative*, and *fundraising expenses* are divided by 10,000 to be more representative. For example, we would not be able to see an effect of a \$1 increase in expenses but would expect to see an effect of a \$10,000 increase.

### **Control Variables**

In addition to the *administrative* and *fundraising expenses* mentioned above, *program expenses* are used as a control, and are taken from line B25 from Part IX: Statement of Functional Expenses of the 990 Form. *Program expenses* are also divided by 10,000 to make the analysis

more representative. *Organization age* is calculated by subtracting the rule date from 2013.

Organization size, in the form of total expenses, was considered but removed as a separate control variable as it creates a multicollinearity issue.

Household income and employment can affect the housing market (Hwang and Quigley, 2006), therefore unemployment rate, per capita income, median household income, and poverty rate were considered. However, due to all four of these variables being highly correlated with one another, *unemployment rate* is selected as primary control variable. *Unemployment rate* is the number of unemployed people divided by the civilian population in the labor force 16 years and over.

### **Descriptive Characteristics**

Based on the descriptive statistics highlighted in Table 2, affiliates on average per year produce about 3 new houses, 1 rehabilitation, 4 repairs, and very few recycled homes. Or, about 8 total outputs per year. The organizations have average overhead expenses of \$173,542, with \$112,297 of that going towards administrative expenses and \$61,245 going towards fundraising expenses. Organizations also have average program expenses of \$1,032,304. Focusing on the ratios, the organizations in the sample have an average overhead ratio of 20%, which is on the higher end of acceptable levels. Breaking the overhead ratio down, on average organizations spend 17% on administrative expenses and only 4% on fundraising expenses. These affiliates, on average, are 26 years old. On a community level, the average unemployment rate in the communities in which these affiliates are located is 10%.

[Insert Table 2 Here]

### **Analysis**

Zero-inflated negative binomial regression is used to analyze the data for several reasons. First, as the dependent variables are the number of new, recycled, rehabilitated, repaired, and total houses, the number of houses is a count of outputs. Therefore, a single output is considered an event, making the same used event count data. Second, the dependent variables do not represent normal distribution as histograms of each of the dependent variables show a right-skewed distribution. Third, the dependent variables are over-dispersed in which the variances are greater than the mean (see Table 3). Lastly, the dependent variables are zero-inflated as indicated by the fact that 31.30% of the affiliates had zero new houses, 83% had zero recycled houses, 71.76% had zero rehabilitated houses, 67.48% had zero repairs, and 17.48% had zero total outputs.

[Insert Table 3 Here]

### **Results**

#### **Measure 1: Overhead Ratio**

Table 4 shows that there are no significant relationships between the overhead ratio and any of the outputs, which does not support hypothesis 1a. However, there is a positive and significant relationship between program expenses and each output, which would be expected as program expenses produce outputs. For example, as an organization's program expenses increase by \$10,000, the expected number of total outputs would increase by a factor of  $\exp(0.004) = 1$ , while holding all variables constant in the model.

[Insert Table 4 Here]

For organization age, there is a negative and statistically significant relationship with the number of repaired houses. If an organization's age increases by one year, the expected number of

repaired houses would decrease by a factor of  $\exp(-0.119) = 0.89$ , while holding all other variables in the model constant. This supports the idea of liability of senescence, in which older organizations are more likely to fail as they become less able to respond to new challenges due to accumulating rules, routines, and structures that inhibit an organization's ability to act, especially during times of environmental instability (Barron, West & Hannan, 1994).

### **Measure 2: Overhead Expenses**

Table 5 shows a positive and statistically significant relationship between overhead expenses and the total number of houses, as well as the number of new and rehabilitated houses, which supports hypothesis 2a. For example, as an organization's overhead expenses increase by \$10,000, the expected number of total outputs would increase by a factor of  $\exp(0.008) = 1.01$ , while holding all variables constant in the model. There continues to be a positive and significant relationship between program expenses and outputs, as well as a continued negative and significant relationship between organization age and outputs.

[Insert Table 5 Here]

### **Measure 3: Administrative Ratio**

As the overhead ratio is the total administrative and fundraising expenses divided by the total expenses, this next analysis examines the relationship between the administrative ratio and each of the outputs. Table 6 shows that there is a negative and statistically significant relationship between the administrative ratio and the number of repaired and total houses, which does not support hypothesis 1b. This means that if an organization's administrative ratio increases by one percentage point, the expected number of total houses would decrease by a factor of  $\exp(-0.922)$

= 0.40, while holding all other variables constant in the model. Thus, the higher an organization's administrative ratio, the fewer outputs are produced. This contradicts Kim's (2016) finding that operating efficiency (measured using the administrative ratio) has no effect on nonprofit performance. As Kim (2016) used attendance at events held by arts organizations as a measure of performance, administrative costs may not drive attendance in this particular context.

[Insert Table 6 Here]

There continues to be a positive and significant relationship between program expenses and each of the outputs except for rehabilitated houses. There is also a positive and significant relationship between fundraising expenses and the total number of houses. For organization age, there is a negative and statistically significant relationship with the number of rehabilitated and repaired houses.

In assessing the effect of community-level variables on outputs, there is a positive and statistically significant relationship between unemployment rate and the number of rehabilitated and total houses. For example, as the unemployment rate increases by 1 percentage point, the number of rehabilitated houses increases by  $\exp(2.358) = 10.57$  and the number of total houses increases by  $\exp(2.364) = 10.63$ , while holding all other variables constant in the model. It intuitively makes sense that, as a community's unemployment rate increases, the demand for housing would also go up and Habitat for Humanity would produce more outputs. However, as the average total outputs is only 8, it does not make sense that when the unemployment rate increases by 1 percentage point, the number of houses goes up by 10. This may be caused by some outliers driving the results up.

**Measure 4: Administrative Expenses**

In contrast to the findings using the administrative ratio, Table 7 shows that there is now a positive and significant relationship between administrative expenses and the number of new and total houses, which supports hypotheses 2b. For example, as an organization's administrative expenses increase by \$10,000, the expected number of total outputs would increase by a factor of  $\exp(0.007) = 1.01$ , while holding all variables constant in the model. There continues to be a positive and significant relationship between program expenses and outputs, a negative and significant relationship between age and outputs, and a positive and significant relationship between unemployment rate and outputs.

[Insert Table 7 Here]

**Measure 5: Fundraising Ratio**

Table 8 shows a positive and significant relationship between the fundraising ratio and the total number of houses, which supports hypothesis 1c. For example, as an organization's fundraising ratio increases by 1 percentage point, the expected number of total houses would increase by a factor of  $\exp(4.114) = 61.19$ , while holding all variables constant in the model. As the number of total houses is extremely high, organizations with a fundraising ratio of 20% or higher are removed, followed by 10% and 8%. However, in running the new models, the coefficient for the fundraising ratio continued to increase, suggesting that perhaps the fundraising ratio is not a ideal measure to be used. There continues to be a positive and significant relationship between program expenses and outputs, a negative and significant relationship between age and outputs, and a positive and significant relationship between unemployment rate and outputs. There is also

a positive and significant relationship between administrative expenses and outputs, which is supported in the earlier measure of administrative expenses.

[Insert Table 8 Here]

### **Measure 6: Fundraising Expenses**

Table 9 shows no relationship between fundraising expenses and outputs, which does not provide support for hypothesis 2c. One possible reason is that fundraising expenses are used to generate contributions and not to produce mission outputs, such as houses, even if the contributions themselves ultimately go towards program and administrative expenses (Coupet & Haynie, 2018). The results in Table 9 also continue to support the previous results in program expenses, administrative expenses, organizational age, and unemployment rate.

[Insert Table 9]

### **Assessment of Dating Taking into Consideration the Possibility of 990 Misreporting**

A stream of related literature has studied the misreporting of financial data on Form 990, which can create a challenge for research (Gorman & Tanenbaum, 1993; Froelich & Knoepfle, 1996; Hager, 2003; Krishna, Yoeman & Yetman, 2006; Lecy & Searing, 2015). To take into consideration that some affiliates may be misreporting their overhead expenses, especially their fundraising expenses, organizations that reported \$0 fundraising expenses, but recorded contributions were removed from the dataset. This includes 226 organizations and reduced the sub-sample down to 597. The same models that were applied above were re-run and even though the coefficients varied slightly, the same significant relationships were identified. Therefore, the study proceeded with the sub-sample of 818 affiliates.

### **Discussion & Conclusion**

This is the first study to examine empirically the effect of overhead ratios and expenses on nonprofit performance. As nonprofit performance is often measured in terms of financials, seldom do studies look at outputs. This study builds a unique dataset to add to the literature by utilizing outputs from Habitat for Humanity affiliates across the United States as the key dependent variable, as well as organizational and community-level data, to contribute to our understanding of the overhead debate. The findings show that both overhead and administrative expenses, but not in the form of fundraising expenses, are positively correlated with nonprofit performance. Furthermore, inconsistent and mixed results suggest that financial ratios are a poor measure of nonprofit performance and that leaders and donors need to move beyond the ratios as a measure of nonprofit performance.

As shown in Table 10, the overall results are inconsistent and mixed. As the overhead ratio is the most common measure, I start with that and find no relationship with performance. However, as the use of ratios in regression models has been criticized (Kronmal, 1993), just the overhead expenses are assessed, and a positive relationship is found with performance. However, as the overhead ratio is made up of both administrative and fundraising expenses, both are further assessed. The administrative ratio shows a negative relationship with performance, whereas the administrative expenses show a positive relationship with performance. The fundraising ratio shows a positive relationship with performance, but then no relationship between fundraising expenses and performance.

[Insert Table 10]

I lean on the results from using the expenses rather than the ratios, as using ratios in regression analysis has been criticized (Kronmal, 1993). For example, there cannot be only one ratio in a regression model, in that every variable in the model needs to be divided by the same factor (Kronmal, 1993). Furthermore, in using a ratio as the independent variable, how does one know if the numerator or denominator is driving the relationship? For example, in using the administrative ratio, the administrative expenses are the numerator and total expenses are the denominator. As program expenses are included in the total expenses, the relationship may be driven by the program expenses and not have anything to do with the administrative expenses.

Furthermore, a reason that increased overhead and administrative expenses, but not in the form of fundraising expenses, may lead to increased performance is that administrative expenses are more internally focused on building capacity to an organization's programs, whereas fundraising expenses have more of an external focus on generating contributions.

Practically, this paper has several implications for both nonprofit leaders and donors. First, this is the first empirical paper to debunk the overhead myth. As the overhead myth is "the false conception that financial ratios are a proxy for overall nonprofit performance" (The Overhead Myth, 2014) this paper shows that nonprofits with higher overhead and administrative expenses outperform those organizations with lower expenses, and that fundraising expenses do not have a direct effect on performance. This study further shows that we need to move beyond using financial ratios as they are a poor measure of performance. Additionally, any financial measures need to be assessed with performance data, preferably in the form of programmatic outputs, outcomes, or impact, to tell a clearer story of how well the organization is performing. Lastly,

this study supports the argument that organizational leaders and donors need to invest into overhead and infrastructure, not just programs. But specifically investing in administrative capacity over fundraising capacity may drive nonprofit performance.

### **Limitations**

This study has some limitations worth noting. First, the sample size was reduced substantially from the original data set (1,395 to 818) and as shown by a t-test was only partially representative of the initial sample. As many of the organizations that were removed from the sample were smaller in size, we may be missing out on understanding the relationship between overhead and outputs of smaller organizations. Second, omitted variable bias is a source of potential error. In this study, organization age, program expenses, administrative expenses, and fundraising expenses, and unemployment rate are controlled for. However, additional organizational and external factors may affect the number of houses built, especially supply-side variables that are more difficult to obtain for Habitat for Humanity such as amount of vacant land to build on and the cost of supplies. Third, based on data challenges, this study could only conduct a cross-sectional analysis, which does not allow for assessment of causal relationships or consideration of lagged effects. For example, funding raised in one year may predict outputs for the following year better than for that year. Finally, given that this study utilizes a non-random sample, the results need to be used with caution in generalizing about the broader nonprofit sector. This is further supported by the manner in which Habitat for Humanity operates. For example, they cannot build a house until they have raised all of the funds for it.

### **Future Research**

A longitudinal data set is being built to address many of the limitations above. Additionally, a qualitative study may be considered to further assess how Habitat for Humanity leadership allocate their expenses. It is also important to have a better understanding of how community-level variables affect nonprofit' ability to meet mission objectives. For example, this study shows that an increase in unemployment rate is correlated with higher performance, suggesting an increased demand for Habitat for Humanity services. However, could an increase in unemployment rate and other similar variables have the opposite effect, such that a higher unemployment rate may indicate fewer community resources, perhaps in the form of charitable donations, that an organization would need to achieve its mission? Future research could also conduct replication studies on different nonprofit sub-sectors, in which uniform output or outcome data is available across a large sample. However, it is recognized that this is not an easy task. Output and outcome data is difficult to access and can be very different between organizations, making it a challenge to compare to other nonprofit sub-sectors. Therefore, nonprofit scholars and practitioners are encouraged to push nonprofits to collect more output and outcome data to continue to advance assessment and research.

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**Table 1.** Mean of Population Minus Sample vs. Mean of Sample

	<b>New</b>	<b>Recycle</b>	<b>Rehab</b>	<b>Repair</b>	<b>Total</b>
Mean of Population Minus Sample (N=577)	1.45	0.12	0.98	2.54	5.10
Mean of Sample (N=818)	3.09	0.29	0.80	3.99	8.17
P value	0.00***	0.00***	0.70	0.07*	0.02**

Note. \*p<0.1 \*\*p < .05, \*\*\* p < .01

**Table 2.** Descriptive Statistics

<b>Variable</b>	<b>Observation</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
New	818	3.10	6.22	0	58
Recycled	818	0.29	0.94	0	12
Rehabilitated	818	0.80	2.35	0	29
Repaired	818	3.99	13.38	0	140
Total	818	8.17	17.14	0	165
Overhead expenses	818	\$173,542	\$280,987	0	\$2,828,856
Administrative expenses	818	\$112,297	\$166,974	0	\$1,877,882
Fundraising expenses	818	\$61,245	\$136,448	0	\$1,561,765
Program expenses	818	\$1,032,304	\$1,966,227	\$0	\$17,200,000
Overhead ratio	818	0.20	0.19	0	1
Administrative ratio	818	0.17	0.18	0	1
Fundraising ratio	818	0.04	0.05	0	0.28
Organization age	818	26	2	1	39
Unemployment rate	818	0.10	0.04	0	0.35

**Table 3.** Mean vs. Variance for Dependent Variables

	<b>New</b>	<b>Recycled</b>	<b>Rehabilitated</b>	<b>Repaired</b>	<b>Total</b>
Mean	3.10	0.29	0.80	3.99	8.17
Variance	38.63	0.89	5.53	179.12	293.77

**Table 4.** Zero-Inflated Negative Binomial Regression Results Using the Overhead Ratio

	<b>Total</b>	<b>New</b>	<b>Recycled</b>	<b>Rehabilitated</b>	<b>Repaired</b>
Overhead ratio	0.039 (0.458)	0.074 (0.542)	0.417 (0.737)	0.298 (0.659)	-0.781 (0.844)
Program expenses	0.004 (0.000)***	0.003 (0.000)***	0.001 (0.000)***	0.001 (0.000)***	0.002 (0.000)***
Organization age	-0.041 (0.028)	-0.012 (0.017)	0.003 (0.020)	-0.038 (.024)	-0.119 (0.041)***
Unemployment rate	1.384 (1.213)	-0.310 (1.094)	0.910 (1.384)	1.961 (1.473)	1.627 (1.685)

*Note.* Robust standard errors are reported in parentheses. \*p < 0.1, \*\*p < 0.05, \*\*\* p < 0.01.

**Table 5.** Zero-Inflated Negative Binomial Regression Results Using the Overhead Expenses

	<b>Total</b>	<b>New</b>	<b>Recycled</b>	<b>Rehabilitated</b>	<b>Repaired</b>
Overhead expenses	0.008 (0.002)***	0.009 (0.002)***	-0.000 (0.006)	0.004 (0.002)*	0.001 (0.005)
Program expenses	0.003 (0.001)***	0.002 (0.000)***	0.001 (0.001)	0.001 (0.000)**	0.002 (0.001)***
Organization age	-0.052 (0.029)*	-0.021 (0.019)	0.006 (0.019)	-0.048 (0.000)*	-0.132 (0.045)***
Unemployment rate	1.431 (1.159)	-0.005 (0.767)	0.917 (1.404)	2.212 (1.467)	1.521 (1.641)

*Note.* Robust standard errors are reported in parentheses. \*p < 0.1, \*\*p < 0.05, \*\*\* p < 0.01.

**Table 6.** Zero-Inflated Negative Binomial Regression Results Using the Administrative Ratio

	<b>Total</b>	<b>New</b>	<b>Recycled</b>	<b>Rehabilitated</b>	<b>Repaired</b>
Administrative ratio	-0.922 (0.359)**	-0.434 (0.269)	-0.024 (0.928)	-0.343 (0.440)	-1.503 (0.809)*
Program expenses	0.003 (0.001)***	0.003 (0.001)***	0.001 (0.001)	0.001 (0.000)*	0.001 (0.000)**
Fundraising expenses	0.016 (0.005)***	0.011 (0.008)	0.002 (0.007)	0.008 (0.007)	0.009 (0.007)
Organization age	-0.043 (0.029)	-0.015 (0.019)	0.004 (0.019)	-0.045 (0.027)*	-0.133 (0.045)***
Unemployment rate	2.364 (1.166)**	0.480 (0.926)	1.074 (1.443)	2.358 (1.408)*	2.416 (1.633)

*Note.* Robust standard errors are reported in parentheses. \*p < 0.1, \*\*p < 0.05, \*\*\* p < 0.01.

**Table 7.** Zero-Inflated Negative Binomial Regression Results Using the Administrative Expenses

	<b>Total</b>	<b>New</b>	<b>Recycled</b>	<b>Rehabilitated</b>	<b>Repaired</b>
Administrative expenses	0.007 (0.004)*	0.017 (0.004)***	-0.004 (0.008)	0.006 (0.004)	-0.009 (0.008)
Program expenses	0.003 (0.001)***	0.003 (0.000)***	0.001 (0.001)	0.001 (0.000)**	0.002 (0.001)***
Fundraising expenses	0.008 (0.007)	-0.008 (0.007)	0.002 (0.007)	0.002 (0.006)	0.011 (0.007)
Organization age	-0.052 (0.029)*	-0.020 (0.016)	0.005 (0.019)	-0.046 (0.026)*	-0.136 (0.046)***
Unemployment rate	1.455 (1.151)	-0.949 (0.823)	1.277 (1.371)	2.073 (1.475)	2.729 (1.619)*

*Note.* Robust standard errors are reported in parentheses. \*p < 0.1, \*\*p < 0.05, \*\*\* p < 0.01.

**Table 8.** Zero-Inflated Negative Binomial Regression Results Using the Fundraising Ratio

	<b>Total</b>	<b>New</b>	<b>Recycled</b>	<b>Rehabilitated</b>	<b>Repaired</b>
Fundraising ratio	4.114 (1.442)***	-0.197 (0.947)	1.924 (1.457)	2.011 (1.327)	3.150 (2.203)
Program expenses	0.003 (0.000)***	0.002 (0.000)***	0.001 (0.001)*	0.001 (0.000)***	0.002 (0.001)***
Administrative expenses	0.007 (0.004)*	0.015 (0.003)***	-0.004 (0.008)	0.005 (0.004)	-0.008 (0.008)
Organization age	-0.050 (0.029)*	-0.022 (0.017)	0.006 (0.020)	-0.046 (0.026)*	-0.129 (0.042)
Unemployment rate	1.844 (1.153)	-0.583 (0.772)	1.310 (1.333)	2.252 (1.468)	2.764 (1.655)*

*Note.* Robust standard errors are reported in parentheses. \*p < 0.1, \*\*p < 0.05, \*\*\* p < 0.01.

**Table 9.** Zero-Inflated Negative Binomial Regression Results Using the Fundraising Expenses

	<b>Total</b>	<b>New</b>	<b>Recycled</b>	<b>Rehabilitated</b>	<b>Repaired</b>
Fundraising expenses	0.008 (0.007)	-0.008 (0.007)	0.002 (0.007)	0.002 (0.006)	0.011 (0.007)
Program expenses	0.003 (0.001)***	0.003 (0.000)***	0.001 (0.001)	0.001 (0.000)**	0.001 (0.001)***
Administrative expenses	0.008 (0.004)*	0.017 (0.004)***	-0.004 (0.008)	0.006 (0.004)	-0.009 (0.008)
Organization age	-0.052 (0.029)*	-0.020 (0.016)	0.005 (0.019)	-0.046 (0.026)*	-0.136 (0.046)***
Unemployment rate	1.455 (1.151)	-0.949 (0.823)	1.277 (1.371)	2.073 (1.475)	2.73 (1.619)*

*Note.* Robust standard errors are reported in parentheses. \*p < 0.1, \*\*p < 0.05, \*\*\* p < 0.01.

**Table 10.** Summary of Findings

<b>Measure</b>	<b>Relationship</b>
Overhead ratio	No relationship
Administrative ratio	Significant and negative
Fundraising ratio	Significant and positive
Overhead expenses	Significant and positive
Administrative expenses	Significant and positive
Fundraising expenses	No relationship